

SPINTRONIC TECHNOLOGY AND ADVANCE RESEARCH, BHUBANESWAR

SUBJECT: LAND SURVEY -II

LESSON PLAN SESSION- 2024-25, SEMESTER – 6TH

DEPT:CIVILENGINEERING

NAME OF THE FACULTY: PRABHUDATTA SENAPATI

SL. NO.	WEEK	TOPICS PLANNED TO BE COVERED	TOTAL NO OF PERIODS	CUMULATIVE NO OF PERIODS
01	01	TACHEOMETRY:	1	1
		Principles, stadia constants determination	1	2
		Stadia tacheometry with staff held vertical and with line of collimation horizontal or inclined, numerical problems	1	3
		Stadia tacheometry with staff held vertical and with line of collimation horizontal or inclined, numerical problems	1	4
		Stadia tacheometry with staff held vertical and with line of collimation horizontal or inclined, numerical problems	1	5
02	02	Stadia tacheometry with staff held vertical and with line of collimation horizontal or inclined, numerical problems	1	6
		Elevations and distances of staff stations – numerical problems	1	7
		Elevations and distances of staff stations – numerical problems	1	8
		Elevations and distances of staff stations – numerical problems	1	9
		CURVES :	1	10
03	03	compound, reverse and transition curve, Purpose & use of different types of curves in field	1	11
		compound, reverse and transition curve, Purpose & use of different types of curves in field	1	12
		Elements of circular curves, numerical problems	1	13
		Preparation of curve table for setting out	1	14
		Setting out of circular curve by chain and tape and by instrument angular	1	15
04	04	methods (i) offsets from long chord, (ii) successive bisection of arc, (iii) offsets from tangents, (iv) offsets from chord produced, (v) Rankine's method of tangent angles	1	16
		Obstacles in curve ranging – point of intersection inaccessible	1	17
		BASICS ON SCALE AND BASICS OF MAP:	1	18
		Fractional or Ratio Scale, Linear Scale, Graphical Scale	1	19

		What is Map, Map Scale and Map Projections	1	20
05	05	How Maps Convey Location and Extent	1	21
		How Maps Convey characteristics of features	1	22
		How Maps Convey Spatial Relationship	1	23
		Classification of Maps	1	24
		Physical Map	1	25

		SURVEY OF INDIA MAP SERIES:	1	26
06	06	Open Series map	1	27
		Defense Series Map	1	28
		Map Nomenclature	1	29
		Quadrangle Name	1	30
07	07	Latitude, Longitude, UTM's	1	31
		Contour Lines	1	32
		Magnetic Declination	1	33
		Public Land Survey System	1	34
		Field Notes	1	35
		BASICS OF AERIAL PHOTOGRAPHY, PHOTOGRAMMETRY, DEM AND ORTHO IMAGE GENERATION:	1	36
		Aerial Photography: Film, Focal Length, Scale Types of Aerial Photographs (Oblique, Straight)	1	37
08	08	Photogrammetry: Classification of Photogrammetry	1	38
		Photogrammetry Process: Acquisition of Imagery using aerial and satellite platform Control Survey, Geometric Distortion in Imagery	1	39
		Geometric Distortion in Imagery Application of Imagery and its support data Orientation and Triangulation Stereoscopic Measurement 19.9.1 X-parallax 19.2.2 Y-parallax	1	40
09	09	Geometric Distortion in Imagery Application of Imagery and its support data Orientation and Triangulation Stereoscopic Measurement 19.9.1 X-parallax 19.2.2 Y-parallax	1	41
		DTM/DEM Generation	1	42
		DTM/DEM Generation	1	43
		Ortho Image Generation	1	44
		Ortho Image Generation	1	45
		MODERN SURVEYING METHODS :	1	46
10	10	Principles, features and use of (i) Micro-optic theodolite, digital theodolite	1	47
		Principles, features and use of (i) Micro-optic theodolite, digital theodolite	1	48
		Principles, features and use of (i) Micro-optic theodolite, digital theodolite	1	49
		Principles, features and use of (i) Micro-optic theodolite, digital theodolite	1	50

		Working principles of a Total Station (Set up and use of total station to measure angles, distances of points under survey from total station and the co-ordinates (X, Y & Z or northing, easting, and elevation) of surveyed points relative to Total Station position using trigonometry and triangulation	1	51
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12	12	BASICS ON GPS & DGPS AND ETS: GPS: - Global Positioning Working Principle of GPS, GPS Signals, Errors of GPS, Positioning Methods DGPS: - Differential Global Positioning System Base Station Setup Rover GPS Set up Download, Post-Process and Export GPS data	1	56
		Sequence to download GPS data from flashcards Sequence to Post-Process GPS data Sequence to export post process GPS data	1	57
13	13	Sequence to export GPS Time tags to file Sequence to export GPS Time tags to file ETS: - Electronic Total Station Distance Angle Measurement Leveling	1	58
		Determining position Reference networks 7.3.6 Errors and Accuracy	1	59
14	14	BASICS OF GIS AND MAP PREPARATION USING GIS Components of GIS, Integration of Spatial and Attribute Information. Three Views of Information System : Database or Table View, Map View and Model View	1	60
			1	61
			1	62
			1	63
			1	64
			1	65
			1	66
			1	67
			1	68

		Spatial Data Model Attribute Data Management and Metadata Concept	1	69
		Prepare data and adding to Arc Map. Organizing data as layers	1	70
15	15	Editing the layers. Switching to Layout View	1	71
		Change page orientation.	1	72
		Removing Borders.	1	73
		Adding and editing map information.	1	74
		Finalize the map	1	75

REFERENCE BOOKS:

1. D. Gaikwad: Advanced Surveying: S.Chand
2. B.C.Punmia: Surveying Vol.I, II, III: Laxmi Publ,Delhi